UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,545	10/27/2005	Maurizio Galimberti	07040.0224	6976

22852 7590 07/28/2008

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER	
FISCHER, JUSTIN R	

ART UNIT	PAPER NUMBER
1791	

MAIL DATE	DELIVERY MODE
07/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/534,545	GALIMBERTI ET AL.	
	Examiner	Art Unit	
	Justin R. Fischer	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-73,76-85,88-97 and 100-103* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-73,76-85,88-97 and 100-103* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 51-62, 65-67, 72, 73, 76-79, 81, 82, 84, 85, 88-91, 93, 94, 96, 97, 100-103 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber (US 4,602,052) and further in view of Chauvin (US 6,982,050) and Lucas (US 5,681,874).

Weber is directed to a diene based rubber composition having carbon black and further including a quaternary ammonium salt (Abstract and Column 3, Lines 30-50). While the reference fails to expressly describe a tire incorporating the above noted composition, one of ordinary skill in the art at the time of the invention would have readily appreciated such a construction in view of the general disclosure of Weber. In particular, Weber is directed to the improvement of carbon-black filled, natural rubber compositions, which are one of the most commonly used, if not the most commonly used, rubber composition in the tire industry- a fair reading of Weber would have suggested a tire construction having the above noted composition.

As to the type of quaternary ammonium salt, Weber teaches the use of any quaternary ammonium salt (Column 4, Lines 20+). More particularly, Weber incorporates US 3,686,113 by reference and suggests the use of ammonium salts listed between Column 5, Lines 11 - Column 7, Line 75. Among the salts listed in US '113 are

those that satisfy the structure of the claimed invention (Column 6, Lines 15-30). Furthermore, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed ammonium salt.

With further respect to Weber, the reference describes a composition that contains, among other things, a reinforcing filler "consisting essentially" of particulate carbon black. The reference further teaches that up to 200 phr of carbon black can be included in the rubber composition. A fair reading of this language does not suggest a reinforcing filler that only includes carbon black- the language "consisting essentially of" only limits the scope of a claim to materials that do not materially affect the basic and novel characteristics of the claimed invention (MPEP 2111.03). In this instance, the basic and novel characteristics of the claimed invention pertain to the introduction of a quaternary ammonium salt to increase the amount of crosslinking and ultimately increase the modulus (Column 4, Lines 9+). One of ordinary skill in the art at the time of the invention would have found it obvious to include silica in the composition of Weber since tire rubber compositions are conventionally described as including carbon black and/or silica to obtain an optimized reinforcement assembly, as shown for example by Chauvin (Column 4, Lines 19+) and furthermore, the language of Weber suggests the inclusion of additional components that do not materially affect the basic and novel characteristics of the claimed invention (ammonium salt in combination with carbon black). Lastly, Lucas evidences the known inclusion of silica coupling agents in order to provide a strong connection between the filler (silica) and the base rubber composition, as shown for example by Lucas (Abstract and Column 2, Lines 35-50). In essence, the

silica coupling agent functions as a bridge between the silica and the base rubber composition since they generally have low compatibility.

Regarding claim 52, the claim discloses structural elements define the fundamental structure of modern day tire constructions. Furthermore, one of ordinary skill in the art at the time of the invention would have found it obvious to use the composition of Weber in any of the fundamental tire components, including the tread. Lastly, the tread is well recognized as being formed of a carbon black-filled, natural rubber composition.

With respect to claims 53, 54, 77, 78, 89, and 90, the tire composition of Weber is not expressly described as including secondary accelerators or DPG.

As to claim 55, the anion disclosed in the ammonium salt of US '113 is a chloride ion.

Regarding claim 56, the claim is only relevant when the ammonium salt has the form of equation (III).

With respect to claim 57, US '113 teaches that the moieties have between 1 and 36 carbon atoms.

Regarding claims 58-60, US '1113 broadly teaches the structure of the ammonium salt (in regards to the moieties). Weber, on the other hand, clearly recognizes the claimed combinations as being consistent with those commonly used in quaternary ammonium salts (Column 6, Lines 55+). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form any of the claimed combinations (N atom and

hydrocarbon radical, whether it is straight chained or a ring). It is emphasized that there a plurality of potential combinations, as evidenced by the plurality of claimed combinations, and applicant has not provided a conclusive showing of unexpected results.

Regarding claims 61, 62, 79, and 91, the rubber composition of Weber comprises less than 15 phr of an ammonium salt (Column 3, Lines 10-20).

With respect to claims 65, 66, 81, and 93, the rubber composition of Weber is formed entirely of natural rubber or as a mixture comprising at least %5 natural rubber and additional rubbers, such as polybutadiene or synthetic polyisoprene (Column 3, Lines 30-50). While the reference fails to specifically include an EPR or an EPDM, such rubbers represent well known and conventional rubbers that are extensively used in tire rubber components. It is emphasized that Weber does suggest a rubber composition formed as a mixture of natural rubber and additional rubbers, as is conventional in the tire industry- the particular selection of any well known rubber would have been well within the purview of one of ordinary skill in the art at the time of the invention. Lastly, it is noted that polybutadiene and synthetic polyisoprene are exemplary in the disclosure of Weber.

Regarding claims 67, 82, and 94, Weber (Column 8, Line 10) suggests the use of "suitable accelerators commonly used in the art"- such a disclosure is recognized as including primary accelerators.

As to claims 72, 84, 96, and 101-103, the claimed ranges are consistent with conventional filler loadings in tire rubber compositions.

Regarding claims 73, 85, and 97, the composition of Weber includes carbon black.

3. Claims 63, 64, 80, and 92 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber, Chauvin, and Lucas as applied in claim 51 above and further in view of Yamaguchi (US 6,550,508). As detailed above, Weber is directed to carbon-black filled rubber composition formed entirely of natural rubber or of a mixture having at least 5% of natural rubber (Column 3, Lines 30-50). While Weber fails to expressly list the glass transition temperatures of natural rubber and the additionally mentioned diene-based rubbers, the claimed value below 20 degrees Celsius is consistent with the commonly used diene-based rubbers, as shown for example by Yamaguchi (Column 6, Lines 45-60).

4. Claims 68-71, 83, and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber, Chauvin, and Lucas as applied in claim 51 above and further in view of Vasseur (US 7,199,175). As detailed above, Weber suggests a rubber composition comprising "any suitable accelerator commonly used in the art". Although the reference fails to expressly identify specific types of accelerators, the claimed accelerators represent the well known and commonly used accelerators in the tire industry, as shown for example by Vasseur (Column 14, Lines 45-55). One of ordinary skill in the art at the time of the invention would have found it obvious to include any of the known accelerators in the rubber composition of Weber.

Response to Arguments

5. Applicant's arguments with respect to claims 51-100 have been considered but are moot in view of the new ground(s) of rejection.

It is initially noted that the rejection with Chauvin as the primary reference has been withdrawn in light of applicant's arguments. It is further noted that the independent claim, as amended, does not represent an originally presented claim since the dependent claims with silica and a silica coupling agent depended from claims that required a specific reinforcing filler loading. Furthermore, the claim amendments provide tire constructions having a new combination of charcteristics.

Regarding Weber, applicant argues that not every composition disclosed by Burke is incorporated by reference into Weber since Weber states that only "suitable" quaternary ammonium salts are incorporated by reference. The examiner respectfully disagrees. Weber includes the following language at Column 4, Lines 20+:

Any quaternary ammonium salt can be used in the rubber compositions of this invention. Suitable quaternary ammonium salts for use in the rubber composition of this invention are disclosed in Burke, US Patent 3,686,113- Column 5, Line 11 to Column 7, Line 75, which is incorporated by reference herein.

First, the language "any quaternary salt" means just that- any quaternary ammonium salt can be used in the rubber composition. Second, the reference teaches that all of the salts disclosed in Burke in Column 5, Line 11 to Column 7, Line 75 represent suitable ammonium salts- this is significantly different than applicant's characterization of the reference in which only suitable salts are incorporated by reference.

Applicant further argues that Burke does not disclose quaternary ammonium salts, where one nitrogen is neutrally charged and one nitrogen is positively charged. The examiner respectfully disagrees. Column 6, Lines 15-30 clearly describes an ammonium salt in which one nitrogen atom is quaternized (and thus positively charged) and one atom is neutral- in combination with an anion (negatively charged halogen ion), the ammonium salt contains is neutral.

Applicant further points to the disclosure of Redicote ® E-11 and suggests that a person of ordinary skill in the art at the time of the invention would recognize the disclosure as being a typographical error. It appears, however, that any possible error might involve the inclusion of Redicote ® E-11 under the specific section of diamines (if in fact Redicote ® E-11 has two positively charged nitrogen atoms). It is emphasized that the reference clearly describes the formation of a salt comprising a cation and an anion. In order to obtain a neutral salt, a cation associated with a negatively charged halogen ion (e.g. chlorine) must have a single positive charge. Independent of whether Redicote ® E-11 is incorrectly included in section (2), the reference expressly teaches an ammonium salt having a single positively charged nitrogen atom.

Regarding the inclusion of silica in the rubber composition of Weber, see examiner's position set forth in the rejection above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
July 24, 2008